

5 CLAIMS:

What is Claimed Is:

1. A projectile guidance system comprising:

a body portion capable of being spun in a first direction;

a nose portion connected to the body portion by a spin control coupling, the nose

10 portion being capable of being spun in a second direction, the nose portion including first and second aerodynamic surfaces fixedly attached to the nose portion and configured and arranged to cause the nose portion to spin in the second direction during projectile flight;

the nose portion including third and fourth aerodynamic surfaces fixedly attached

15 to the nose portion, which are configured and arranged such that when the nose portion is spinning the third and fourth aerodynamic surfaces have no net effect on projectile flight, but when the nose portion is despun using the spin control coupling, the third and fourth aerodynamic surfaces induce both a moment and a lateral force to the nose, causing the projectile flight path to change.

20 2. The projectile guidance system of claim 1 wherein the first and second aerodynamic surfaces are spin canards mounted on opposite sides of the nose portion.

3. The projectile guidance system of claim 2 wherein the first and second spin canards are differentially canted.

4. The projectile guidance system of claim 3 wherein the first and second spin canards are each differentially canted at the same angle.

5. The projectile guidance system of claim 3 wherein the first and second spin canards are each differentially canted at a different angle.

6. The projectile guidance system of claim 4 wherein the first and second spin canards are differentially canted at 4°.

30 7. The projectile guidance system of claim 1 wherein the third and fourth aerodynamic surfaces are steering canards mounted on opposite sides of the nose portion.

8. The projectile guidance system of claim 7 wherein the steering canards are each canted at the same angle.

9. The projectile guidance system of claim 7 wherein the steering canards are each 35 canted at a different angle.

10. The projectile guidance system of claim 8 wherein the steering canards each have a 4° cant angle.
11. The projectile guidance system of claim 9 wherein the cant angle of each steering canard is different than the cant angle of each spin canard.
- 10 12. The projectile guidance system of claim 1 further including a navigation system which is connected to the spin control coupling, the navigation system using the spin control coupling to despin the nose portion to make a course correction, then using the spin control coupling to allow the nose portion to freely rotate, whereupon the first and second aerodynamic surfaces cause the nose portion to respin in the second direction.